Application No. 10/712,045
Amendment dated September 5, 2006
Reply to Office Action of May 5, 2006

Docket No.: 3313-1056P

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A mixture solution for preparing a conductive polymer to produce a solid electrolytic capacitor, comprising:

a conductive polymer monomer, ~~an~~ a transition metal oxidant solution with a concentration of higher than 50wt%, ~~a solvent,~~ and a polymerization retardant having one of five-member ring and six-member ring compounds with a functional group $-\overset{|}{C}=N-$; and

wherein the retardant preventing the mixture of the oxidant and the conductive polymer monomer from polymerization under a room temperature, and the capacitor element is fully immersed in the mixture solution, the conductive polymer polymerizes under a temperature higher than the room temperature.

2. (Original) The mixture solution of claim 1, wherein the conductive polymer monomer is selected from the group consisting of thiophene, pyrrole, phenylvinylene, aniline, their derivations and combinations.

3. (Original) The mixture solution of claim 2, wherein the conductive polymer monomer is 3,4-ethylenedioxythiophene.

4. (Currently Amended) The mixture solution of claim 1, wherein the transition metal oxidant solution is a ferric ~~compound~~oxidant solution.

5. (Currently Amended) The mixture solution of claim 4, wherein the ferric ~~compound~~ oxidant solution is selected from the group consisting of Fe(III) tosylate, Fe(III) sulfate, Fe(III) perchloride, and Fe(III) chloride and mixed oxidants containing any of these ferric compounds.

6. (Original) The mixture solution of claim 1, wherein the polymerization retardant is selected from the group consisting of imidazole, 2-methylimidazole, pyrazole, triazole, pyridine, pyridazine, their derivations and combinations.

7. (Currently Amended) The mixture solution of claim 1, wherein the solvent of the transition metal oxidant solution is selected from the group consisting of alcohol, ketone, water, and mixtures containing any of these solvents.

8. (Currently Amended) The ~~mixture~~ transition metal oxidant solution of claim 7, wherein the solvent is selected from methanol, isopropanol, acetone, water, and mixture containing any of these solvents.

9. (Cancelled)

10. (Original) The mixture solution of claim 1, wherein the molar ratio of polymerization retardant to the oxidant ranges from 0.1 to 2.

11. (Original) The mixture solution of claim 1, wherein further comprises a dopant and the dopant is selected from the group consisting of toluenesulfonic acid, sulfonated compounds, ferric chloride ($FeCl_3$), BF_4^-, PF_6^-, iodine (I), sulfuric acid (H_2SO_4), phosphoric acid (H_3PO_4), citric acid, hydrochloric acid (HCl), perchloric acid ($HClO_4$), their derivations and combinations.

12. (Currently Amended) The method for preparing a conductive polymer to produce a solid electrolytic capacitor, comprising:

providing a mixture solution composing a conductive polymer monomer, a transition metal ~~an~~ oxidant solution with a concentration of higher than 50wt%, ~~a solvent~~ and a polymerization retardant having one of five-ring and six-ring compounds with a functional group $-\overset{|}{C}=N-$; wherein the retardant preventing the oxidant and the conductive polymer monomer from polymerization at room temperature;

immersing a capacitor element into this mixture solution at room temperature; and

raising the temperature of the mixture solution to accelerate the polymerization of the conductive polymer monomer.

13. (Original) The method of claim 12, wherein the conductive polymer monomer is selected from the group consisting of thiophene, pyrrole, phenylvinylene, aniline, their derivations and mixtures containing any of these monomers.

14. (Original) The method of claim 12, wherein the conductive polymer monomer is 3, 4 -ethylenedioxythiophene.

15. (Currently Amended) The method of claim 12, wherein the transition metal oxidant solution is a ferric ~~compound~~oxidant solution.

16. (Currently Amended) The method of claim 15, wherein the ferric ~~compound~~ oxidant solution is selected from the group consisting of Fe(III) tosylate, Fe(III) sulfonate, Fe(III) perchloride, and Fe(III) chloride.

17. (Original) The method of claim 12, wherein the polymerization retardant is selected from the group consisting of imidazole, 2-methylimidazole, pyrazole, triazole and pyridazine, their derivations and mixtures containing any of these compounds.

18. (Currently Amended) The method of claim 12, wherein the solvent of the transition metal oxidant solution is selected from alcohol, ketone , water and mixtures containing any of these monomers.

19. (Original) The method of claim 18, wherein the solvent is selected from the group consisting of methanol, isopropanol, acetone, water, and mixtures containing any of these monomers.

20. (Cancelled)

21. (Original) The method of claim 12, wherein the molar ratio of the polymerization retardant to the oxidant ranges from 0.1 to 2.

22. (Original) The method of claim 12, further comprises a dopant and the dopant is selected from the group consisting of toluenesulfonic acid, sulfonated compounds, ferric chloride ($FeCl_3$), BF_4^-, PF_6^-, iodine (I), sulfuric acid (H_2SO_4), phosphoric acid (H_3PO_4), citric acid, hydrochloric acid (HCl), perchloric acid ($HClO_4$), their derivations and the combinations having any of these dopants.